

## 1.0 EXECUTIVE SUMMARY

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### 1.1 PROJECT OVERVIEW

The City of Santa Clara's electric department, doing business as Silicon Valley Power (SVP), proposes to construct, own, and operate an electric generating plant in the City of Santa Clara, Santa Clara County, California, the Pico Power Project (PPP). The PPP will be a natural gas-fired, combined-cycle electric generating facility rated at a nominal net generating capacity of 122-megawatts (MW), with the ability to peak-fire to 147 MW. The proposed 2.86-acre project site is located west of the intersection of Lafayette Street and Duane Avenue and immediately north of SVP's Kifer Receiving Station. The project is surrounded by heavy industrial and light industrial land uses. The project site is owned by the City of Santa Clara and is zoned Public/Quasi-Public. A parcel map of the PPP site is attached as Appendix 1-A. A list of the owners of property located within 1,000 feet of the power plant site and within 500 feet of the linear corridors (natural gas pipeline and waste water discharge pipeline) is attached as Appendix 1-B.

#### 1.1.1 The Pico Power Project

Figure 1.1-1 is an architectural rendering of the project. Figure 1.1-2 shows the location of the project features. The main project features are as follows:

- The project is a 122 MW nominal, natural gas-fired, combined-cycle generating plant with two General Electric LM-6000PC Sprint combustion turbine-generators (CTGs); a single condensing steam turbine generator (STG); a deaerating surface condenser; a mechanical draft plume-abated cooling tower; and associated support equipment.
- The CTGs are equipped with standard combustors, air inlet chilling, and heat recovery steam generators (HRSGs) with duct burners. The emission reduction system includes a selective catalytic reduction (SCR) unit and water injection to control nitrogen oxides (NO<sub>x</sub>) and an oxidation catalyst to control carbon monoxide (CO).
- An existing pipeline currently located within the boundaries of the PPP site will supply tertiary treated recycled waste water. The source of this water is the South Bay Water Recycling Program (SBWR), operated by the San Jose/Santa Clara Water Pollution Control Plant (WPCP), which is located in the City of Alviso.
- A 115-kilovolt (kV) on-site switchyard will deliver the plant's power directly to the adjacent Kifer Receiving Station and the nearby Scott Receiving Station (located approximately 0.25 miles west of the site).
- A gas compressor facility will be located on City of Santa Clara property at the corner of Lafayette and Comstock streets, 500 feet from the PPP site.
- Approximately 2.0 miles of 12-inch diameter underground natural gas pipeline will convey gas from Pacific Gas & Electric Company's (PG&E) gas distribution Line 132. This pipeline begins at the corner of Gianera Street and Wilcox Avenue, north of the PPP site, and extends to the gas compressor station.
- Approximately 500 feet of pipeline will convey compressed natural gas from the gas compressor station back to the PPP site.
- Approximately 900 feet of 18-inch diameter underground pipeline will convey the project's waste water discharge from the PPP site south in Lafayette Avenue to a 27-inch waste water main in Central Expressway.

- One PG&E 115 kV steel lattice transmission tower (serving the Newark-Kifer and Kifer-San Jose B lines) will be relocated as two monopole towers from the center of the PPP site to its western margin. The existing Newark-Kifer and Kifer-San-Jose B conductors will be placed underground between the relocated tower and the Kifer Receiving Station.
- The existing SVP NAJ-Kifer 60 kV line, located on the west side of the former Pico Way right-of-way, will be relocated to the eastern edge of the PPP, along Duane Avenue and Lafayette Street, before connecting to the Kifer Receiving Station

## **1.2 PROJECT SCHEDULE**

Silicon Valley Power has requested that this Application for Certification (AFC) of the PPP be processed under the California Energy Commission's (CEC) expedited six-month licensing process. Assuming the project receives a license by May 2003, construction of the PPP will begin in the summer of 2003. Pre-operational testing of the power plant will begin in the fall of 2004, and full-scale commercial operation is expected to commence by December, 2004.

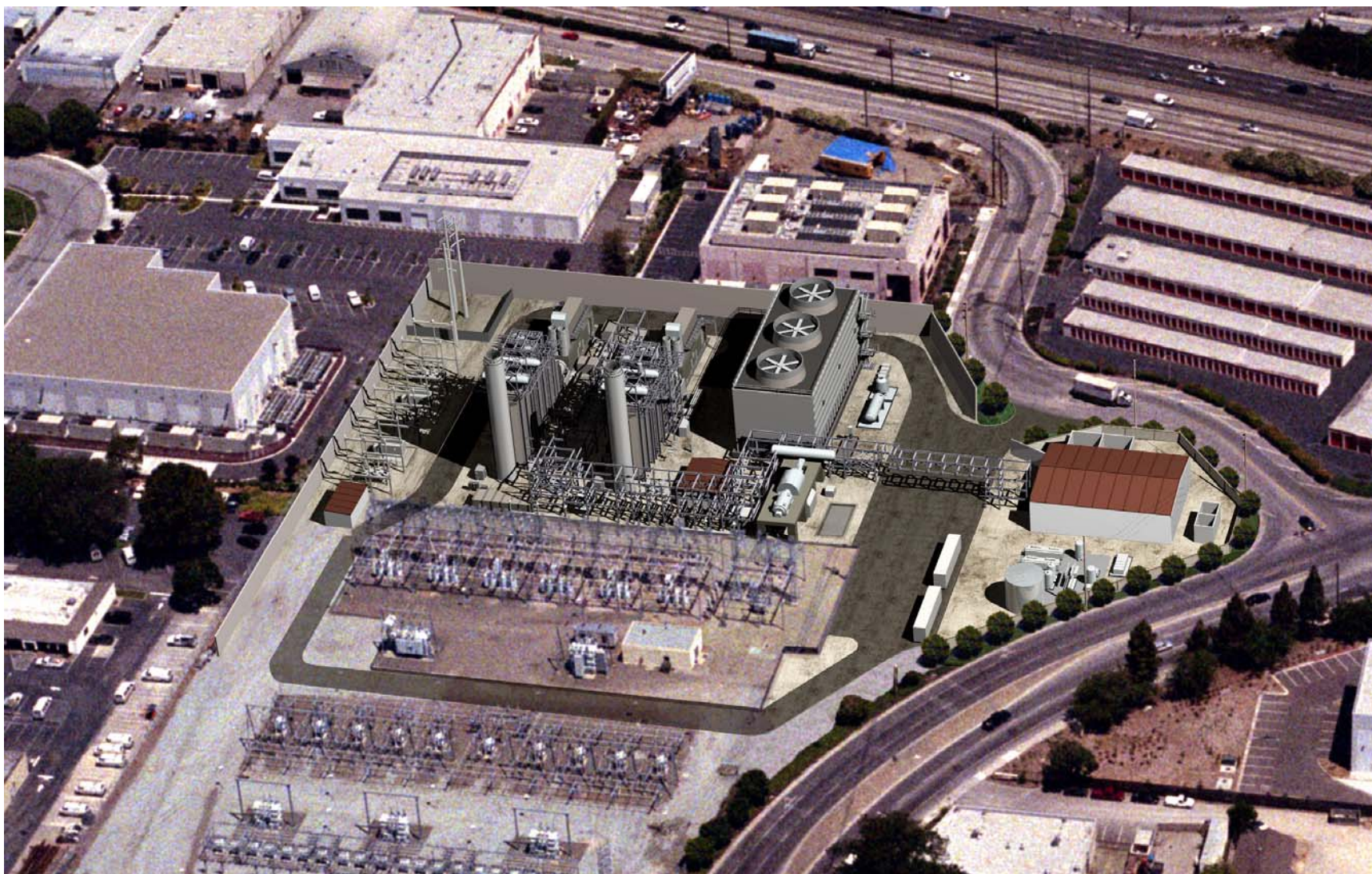
## **1.3 PROJECT OWNERSHIP**

The PPP will be owned by the City of Santa Clara. The City, through its Electric Department, has been providing electrical power to its residents, businesses, and the City's street lighting system since 1896. The Electric Department first began generating electrical power in October of 1896, with a dynamo and 46 two-thousand candlepower direct-current street lamps. In 1903, the utility changed to an alternating current system and began purchasing most of its power from investor-owned utilities. In 1965, the City received a power allocation from the Central Valley Project and, in 1968, the City became a charter member in the Northern California Power Agency (NCPA), a consortium of municipal electrical utilities. The Electric Department, now doing business as Silicon Valley Power, has interests in natural gas-fired, geothermal, hydroelectric, and other sources of electrical generation that it uses to meet its annual peak historic demand of 438 MW. The PPP is designed to provide approximately 25 percent of SVP's generation resources and will help SVP meet expected load growth by replacing the power obtained through a long-term sales agreement that will expire in 2005, just after the PPP comes on line.

SVP will contract with PG&E for the maintenance of the new natural gas supply pipeline for the PPP. SVP will contract with PG&E and/or other natural gas suppliers to supply natural gas to the PPP. The relationship between SVP, as owner of the PPP and pipeline, and PG&E and other suppliers will be contractual only (one of supplier/user or seller/buyer of services or products).

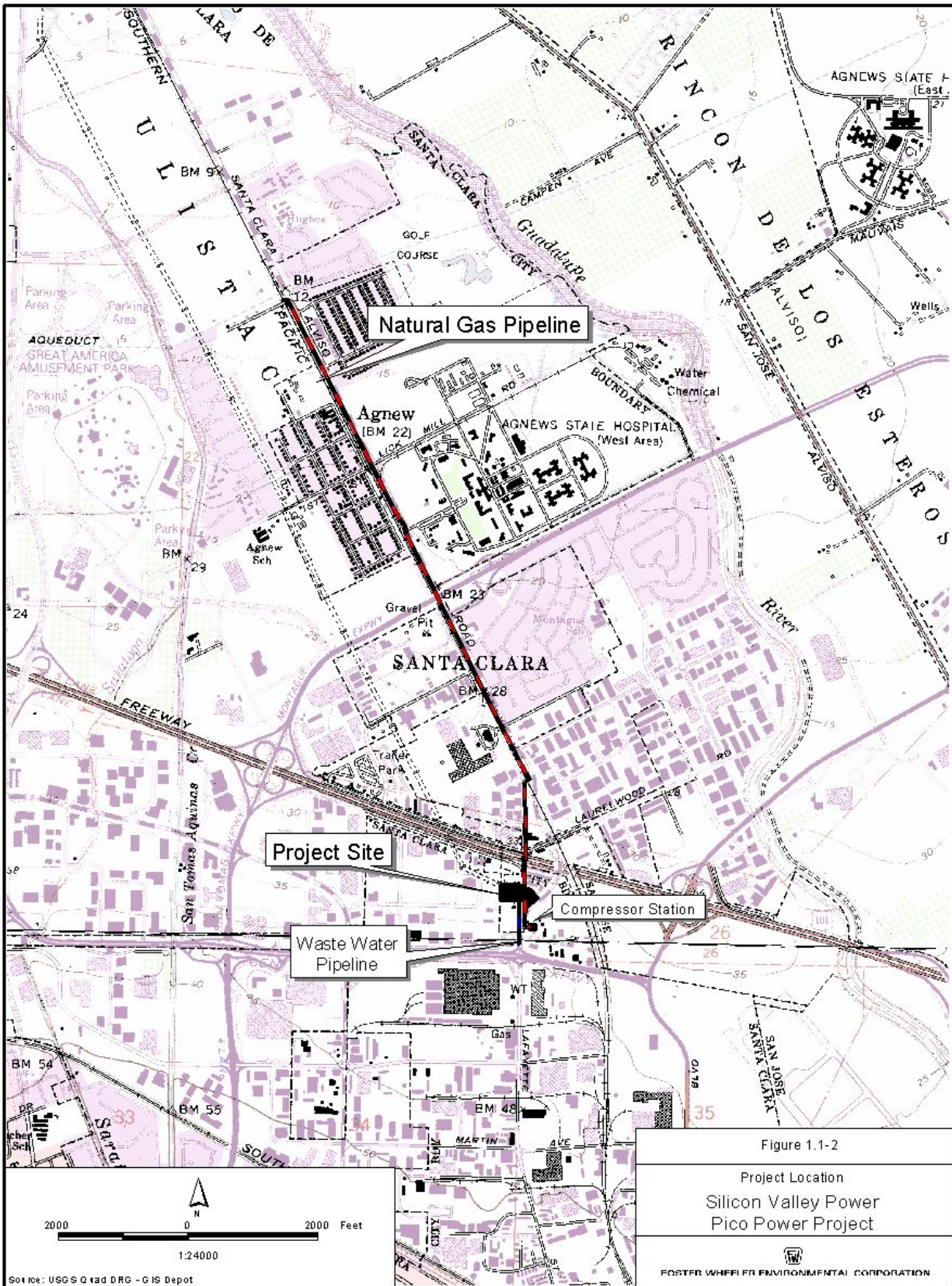
## **1.4 PROJECT ALTERNATIVES**

A "no project" alternative was considered and rejected. The "no project" alternative fails to meet the basic project objectives of the PPP project as described in this AFC. For example, the "no project" alternative is inconsistent with one of the primary objectives of SVP's program to provide electrical power to its business customers and to replace the power obtained through a long-term sales agreement that will expire in 2005, very soon after the PPP comes on line. In addition, the "no project" alternative could result in greater fuel consumption and air pollution in the state, because older, less efficient plants with higher air emissions would continue to generate power instead of being replaced with cleaner, more efficient plants, such as the PPP. Also, during limited availability of in-state generated electricity, imported electrical energy has proven to be expensive and not always available.



**Figure 1.1-1.** Architectural rendering.





In addition to the “no project” alternative, the Applicant has analyzed three possible alternative power plant sites. Each of these sites was rejected as infeasible because each fails to meet most of the PPP project’s basic objectives, fails to avoid or minimize potentially significant environmental effects, and/or includes the potential for the alternative itself to result in one or more significant environmental impacts. A complete discussion of project alternatives, including the “no project alternative” is presented in Section 9.

Similarly, alternative routes for the natural gas pipeline, electric transmission line, and waste water pipeline were also reviewed and found either to be infeasible, to fail to avoid or minimize any potential significant environmental effects, or to have the potential to cause significant environmental effects that are otherwise avoided or minimized by the proposed project. Natural gas pipeline route alternatives are also presented in Section 9.

Several alternative generating technologies were reviewed in a process that resulted in the selection of a state-of-the-art, combined-cycle, natural gas-fired combustion turbine power plant for the PPP. The alternative technologies included conventional oil and natural gas-fired plants, simple-cycle combustion turbines, biomass-fired plants, waste-to-energy plants, solar plants, wind generation plants, and others. None of these technologies was considered better than or equal to the combined-cycle technology selected for the PPP.

## **1.5 ENVIRONMENTAL CONSIDERATIONS**

Pursuant to the requirements set forth in existing environmental laws and the CEC’s regulations, sixteen areas of possible environmental impact from the proposed project were investigated. Detailed descriptions and analyses of these areas are presented in Sections 8.1 through 8.16 of the AFC. As discussed in detail in this AFC, with the implementation of the proposed mitigation measures and the anticipated Conditions of Certification, there will be no significant unmitigated environmental impacts associated with the construction and operation of the PPP. This Executive Summary highlights findings related to two subject areas that have historically been of interest in CEC proceedings: air quality and biological resources.

### **1.5.1 Air Quality**

The site is located in a State of California Ambient Air Quality Standards Nonattainment Area for ozone and for particulate matter with a diameter less than 10 microns (PM<sub>10</sub>). An assessment of the impact to air quality was performed using detailed air dispersion modeling. The air impacts from the PPP will be mitigated by the proposed combustion turbine emission control technology and cooling tower drift control technology. Emission reduction credits (ERCs) will be obtained to offset the project’s emissions of NO<sub>x</sub>. Also, a range of options is offered to mitigate the project’s contribution to state-level non-attainment for PM<sub>10</sub>. These mitigation measures will result in the project having no significant adverse impact on air quality or public health. See Section 8.1 for a detailed analysis of air quality.

### **1.5.2 Biological Resources**

The U.S. Fish and Wildlife Service (USFWS) and CEC have theorized that cumulative effects of nitrate deposition from growth in the use of automobiles, power plants, and other emission sources combined may discourage the population recovery of the Bay checkerspot butterfly and other state and federally listed species that are endemic to serpentine soil areas located several miles from the PPP. This effect could occur by promoting the growth of non-native plants. This discourages the growth of native plants that serve as larval host plants or nectar food source plants for the butterfly.

In a recent power plant licensing case that was reviewed by the CEC for the Los Esteros Critical Energy Facility (01-AFC-12), the CEC Staff found that the project's potential indirect effects on the Bay checkerspot butterfly and other serpentine endemic species would be too small and the connection between project actions and potential harm to the butterfly too tenuous, to be considered significant as an indirect effect under the California Environmental Quality Act (CEC 2001). The CEC Staff concluded, however, that the combined effect of the expansion of U.S. Highway 101 in the Coyote Valley, other ambient sources, and proposed new power plants in Santa Clara County could have a regional and cumulative adverse effect on the Bay checkerspot butterfly. They recommended that the Applicant for the Los Esteros participate in the reduction of these cumulative effects by purchasing and managing undeveloped critical habitat for conservation of the butterfly and other serpentine endemic species.

SVP has conducted the analysis of potential effects to the Bay checkerspot butterfly using USFWS- and CEC-approved air dispersion modeling techniques developed for the Los Esteros project. Even though SVP believes that the potential impacts to the Bay checkerspot butterfly are less than significant, SVP offers to participate in the reduction of regional cumulative impacts to the Bay checkerspot butterfly. SVP will purchase or lease and manage Bay checkerspot butterfly critical habitat acreage; will retire, reduce, or retrofit existing sources of nitrate air emissions; or some combination of these two methods. See Section 8.2 for a detailed discussion of biological resources.

## **1.6 KEY BENEFITS**

### **1.6.1 Environmental**

The PPP will use advanced, high efficiency combustion turbine technology and SCR and CO Catalyst to minimize emissions from the facility. NO<sub>x</sub> emissions (a precursor to ozone formation) produced by the PPP, will be up to 90 percent less per megawatt than those produced by many older, existing power plants in the Bay Area. In addition to the significant reduction of emissions, the PPP's operating efficiency will be such that the plant will consume less fuel than older plants of similar size. The PPP will also purchase and permanently retire emission reduction credits, or "offsets" that will more than compensate for its minimal emissions.

The use of tertiary treated water as primary cooling and process water for the PPP will prevent an additional continuous demand on the local potable water system and allow effective use of the area's water supply.

### **1.6.2 Employment**

The project will provide for a peak of approximately 206 construction jobs over an 18 to 20 month period and approximately 15 technical and skilled, family-wage positions in the energy center throughout the life of the plant. In addition to the direct employment benefit, the PPP plant will require and use the services of local firms for major maintenance and overhauls, plant supplies, and other support services throughout the life of the facility.

### **1.6.3 Energy Efficiency**

The PPP will be an efficient, environmentally responsible source of economic and reliable electrical energy to serve the growing energy demands of the Silicon Valley Power service area and the Bay Area.

## 1.7 REGULATORY FRAMEWORK

This Application is submitted under the six-month process pursuant to Title 20 of the California Code of Regulations (CCR), Division 2, Chapter 5, Article 7, which contains provisions for considering expedited applications under Public Resources Code Section 25550. In order to facilitate Commission review of the data requirements for processing this AFC under the six-month process, we have provided the following summary:

- In addition to containing all of the information outlined in Appendix B of the CEC regulations, this AFC contains a description of all applicable laws, ordinances, regulations, and standards (LORS) relating to each environmental resource category. Within each resource category, the AFC also contains a table of additional permits and anticipated processing schedules
- This AFC contains a cumulative air quality impact analysis (Appendix 8.1-H) including all stationary emissions sources within a six-mile radius that: 1) have received construction permits but are not yet operational, or 2) are currently undergoing air district permit application review.
- The Air Quality section of the AFC (Section 8.1) includes a description of the initial commissioning phase of the project and demonstrates through air dispersion modeling that emissions during initial commissioning do not cause new violations of state or federal ambient air quality standards for the criteria pollutants. This analysis demonstrates compliance with 20 CCR 2022(b)(2)(B). The AFC further demonstrates compliance with 20 CCR 2022(b)(2)(C) by providing a detailed description of air quality mitigation measures (Section 8.1.8).
- Section 8.9 of the AFC contains a modeling analysis that demonstrates that the project will not result in public exposure to toxic air contaminants that would be considered significant impacts, thereby complying with 20 CCR 2022(b)(2)(D).
- The project will not need a waste discharge permit from the San Francisco Bay Regional Water Quality Control Board because waste water will be delivered to a publicly owned treatment works (POTW) as described in Sections 7.4 and 8.15. The AFC contains the information required by 20 CCR Section 2022(b)(2)(E).
- Section 8.2 of the AFC describes the biological surveys and mitigation measures being implemented for the Pico Power Project. This section contains the information necessary to comply with 20 CCR Section 2022(b)(2)(F).
- Section 8.5.2.2 of the AFC contains a modeling analysis demonstrating compliance with 20 CCR Section 2022(b)(2)(G). The project will use aqueous ammonia to reduce air emissions and the project does not expose public receptors to unacceptable risks associated with a release of ammonia from either the storage tank or from an accident associated with a release during unloading of a tanker truck.
- The AFC also demonstrates in Section 8.5 and Table 8.5-3 that the project will not store gaseous flammable or explosive materials in quantities greater than 25,000 standard cubic feet in compliance with 20 CCR 2022(b)(2)(I).
- Section 8.10.2.4 of the AFC contains an environmental justice evaluation as specified in 20 CCR Section 2022(b)(4). The evaluation demonstrates that the project will not have a disproportionate impact on low-income or minority populations.
- Appendix 6 describes transmission interconnection studies conducted by PG&E and SVP demonstrating that the project will not result in significant adverse impact on the PG&E and SVP

electrical systems, as required by 20 CCR Section 2022(b)(3). A summary of the study results is provided in Section 6.2 of this AFC. The studies are included as Appendices 6-B and 6-C.

- A discussion of project ownership and site control as required by 20 CCR Section 2022(b)(5) is contained in Section 1.3 above. Appendix 1-A contains a project parcel map.

## **1.8 PERSONS WHO PREPARED THE AFC**

Persons with primary responsibility for the preparation of each section of this AFC are listed in Appendix 1-C.